

Attorney's Docket: 2002DE123
Serial No.: 10/523,536
Art Unit 1795
Response to Office Action Mailed 04/15/2008

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) A process for controlling the charge of an electrophotographic toner, electrophotographic developer, powder coating material, electret material or a chargeable material in an electrostatic separation process comprising the step of adding at least one charge control agent to the electrophotographic toner, electrophotographic developer, powder coating material electric material or chargeable material, wherein the at least one charge control agent is a layered double hydroxide salt comprising a combination of trivalent and divalent and optionally monovalent metal cations having hydroxyl groups wherein the number of hydroxyl groups in the layered double hydroxide salt is from 1.8 to 2.2 times the sum of all the metal cations wherein the layered double hydroxide salt contains Mg^{2+} and Al^{3+} , and one or more organic anions A of the formula (I)



wherein

X is hydroxyl, carboxyl, sulfato or sulfo;

Y is carboxyl, sulfate or sulfo, and

Attorney's Docket: 2002DE123
Serial No.: 10/523,536
Art Unit 1795
Response to Office Action Mailed 04/15/2008

- R is an aliphatic, cycloaliphatic, heterocycloaliphatic, olefinic, cycloolefinic, heterocycloolefinic, aromatic, heteroaromatic, araliphatic or heteroaraliphatic radical having a total of at least 8 carbon atoms, optionally substituted by one or more substituents selected from the group consisting of hydroxyl, amino, halogen, C₁-C₂₂-alkyl, C₁-C₂₂-alkoxy, -C₁-C₂₂-alkylene-(CO)-O-(CH₂CH₂O)₀₋₅₀-alkyl, -C₁-C₂₂-alkylene-(CO)-O-(CH₂CH₂O)₀₋₅₀-haloalkyl, carboxyl, sulfo, nitro and cyano.
2. (Canceled)
3. (Previously Presented) The process as claimed in claim 1, wherein the layered double hydroxide salt comprises monovalent metal cations selected from the group consisting of Li⁺, Na⁺ and K⁺.
4. (Canceled)
5. (Currently Amended) The process as claimed in claim 1 ~~claim 4~~, wherein the layered double hydroxide salt has a molar ratio Mg²⁺ : Al³⁺ of from 3.1:1 to 1:2.
6. (Previously Presented) The process as claimed in claim 1, wherein the one or more organic anions A is an anion selected from the group consisting of benzoic acid,

Attorney's Docket: 2002DE123
Serial No.: 10/523,536
Art Unit 1795
Response to Office Action Mailed 04/15/2008

naphthalenedisulfonic acids, naphthalenedicarboxylic acids, hydroxynaphthoic acids, octanedicarboxylic acid, decanedicarboxylic acid, dodecanedicarboxylic acid, tetradecanedicarboxylic acid, hexadecanedicarboxylic acid, octadecanedicarboxylic acid, naphthalenetetracarboxylic acid, sulfosuccinic acid (C₆-C₂₀)-alkyl monoesters and sulfosuccinic acid (C₆-C₂₂)-fluoroalkyl monoesters.

7. (Canceled)

8. (Previously Presented) The process of claim 1, wherein the at least one of the more than one organic anions is an anion of a C₁₂-C₄₄ fatty acid.

9. (Previously Presented) The process as claimed in claim 1, wherein the layered double hydroxide salt is a calcined hydrotalcite.

10. (Previously Presented) The process as claimed in claim 1, wherein the adding step further comprises adding at least one charge control agent selected from the group consisting of triphenylmethanes; ammonium compounds; immonium compounds, iminium compounds; fluorinated ammonium compounds; fluorinated immonium compounds; biscationic acid amides; polymeric ammonium compounds; diallylammonium compounds; aryl sulfide derivatives, phenol derivatives; phosphonium compounds; fluorinated phosphonium compounds; calix[n]arenes, cyclically linked

Attorney's Docket: 2002DE123
 Serial No.: 10/523,536
 Art Unit 1795
 Response to Office Action Mailed 04/15/2008

oligosaccharides, interpolyelectrolyte complexes; polyester salts; metal complex compounds, salts of ionic structured silicates, hydroxycarboxylic acid-metal complexes; hydroxycarboxylic acid-nonmetal complexes, benzimidazolones; azines, thiazines and oxazines.

11. (Previously Presented) The process as claimed in claim 1, wherein the at least one charge control agent is present from 0.01% to 50% by weight, based on the total weight of the electrophotographic toner, electrophotographic developer, coating material, powdercoating material, electret material or chargeable material.

12. (Previously Presented) An electrophotographic toner, powder or powdercoating material, comprising from 30% to 99.99% by weight of a binder, from 0.01% to 50% by weight of at least one layered double hydroxide salt comprising a calcined hydrotalcite or an uncalcined hydrotalcite, and one or more organic anions A of the formula (I)



wherein

X is hydroxyl, carboxyl, sulfato or sulfo;

Y is carboxyl, sulfate or sulfo, and

R is an aliphatic, cycloaliphatic, heterocycloaliphatic, olefinic, cycloolefinic, heterocycloolefinic, aromatic, heteroaromatic, araliphatic or heteroaraliphatic radical having a total of at least 8 carbon atoms, optionally substituted by one or more substituents selected from the group consisting of hydroxyl, amino, halogen, C₁-C₂₂-alkyl, C₁-C₂₂-alkoxy, -C₁-C₂₂-alkylene-(CO)-O-(CH₂CH₂O)₀₋₅₀-alkyl, -C₁-C₂₂-alkylene-

Attorney's Docket: 2002DE123
Serial No.: 10/523,536
Art Unit 1795
Response to Office Action Mailed 04/15/2008

(CO)-O-(CH₂CH₂O)₀₋₅₀-haloalkyl, carboxyl, sulfo, nitro and cyano, wherein the weight percentages are based on the total weight of the electrophotographic toner, powder or powdercoating material.

13. (Canceled)

14. (Canceled)

15. (Previously Presented) The process as claimed in claim 1, wherein divalent metal cations are selected from the group consisting of Mg²⁺, Ca²⁺, Zn²⁺, Co²⁺, Ni²⁺, Fe²⁺, Cu²⁺ and Mn²⁺.

16. (Previously Presented) The process as claimed in claim 1, wherein the trivalent metal cations present are selected from the group consisting of Al³⁺, Fe³⁺, Co³⁺, Mn³⁺, Ni³⁺, Cr³⁺ and B³⁺.

17. (Previously Presented) The process as claimed in claim 8, wherein the C₁₂-C₄₄ fatty acid is stearic acid.

18. (Previously Presented) The electrophotographic toner, powder or powdercoating material as claimed in claim 12, further comprising from 0.001% to 50% by weight of a colorant.

Attorney's Docket: 2002DE123Serial No.: 10/523,536Art Unit 1795Response to Office Action Mailed 04/15/2008

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Previously Presented) A charge controlled electrophotographic toner, electrophotographic developer, powder coating material, electret material or chargeable material for use in an and in electrostatic separation process made in accordance with the process of claim 1.

23. (Previously Presented) The process according to claim 1, wherein the electrophotographic toner, electrophotographic developer, powder coating material, electret material or a chargeable material further comprises a binder and the adding step further comprises incorporating the at least one charge control agent into the binder.

24. (Previously Presented) The process as recited in claim 1, wherein the at least one charge control agent is present as an aqueous, aqueous-organic or organic dispersion.

25. (Canceled)

26. (Canceled)